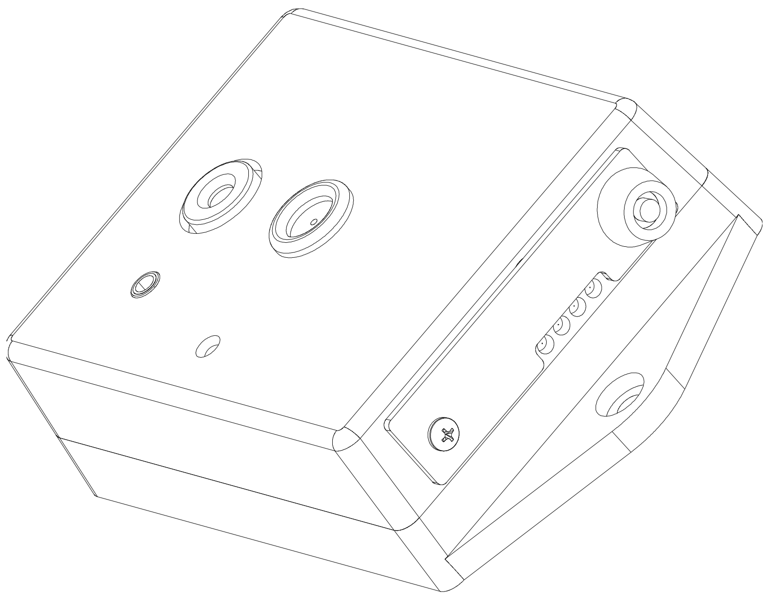
microBus-Cam II

Installation and Operation Manual



Thank you for choosing the **microBus-Cam II**®. This combination of a digital recorder, camera and microphone into one package is a breakthrough in size, cost and convenience. Totally solid-state, with no moving parts, the **microBus-Cam II**® records to an SD (secure digital) memory card for ultimate reliability in all weather and road conditions.

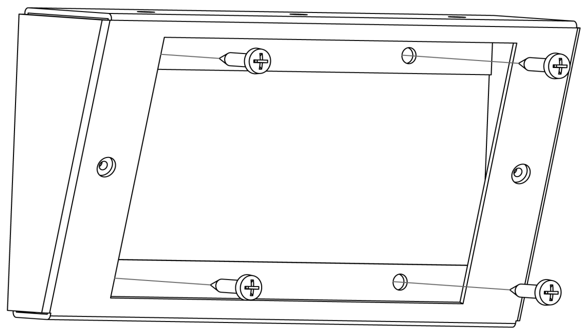
This manual provides a source for easy navigation and setup of the product features and operation. Here, you can set:

- On-screen and recorded Time and Date stamps.
- Recording quality.
- Recording speed.
- Recording schedule.
- Whether to overwrite or stop recording when memory is full.

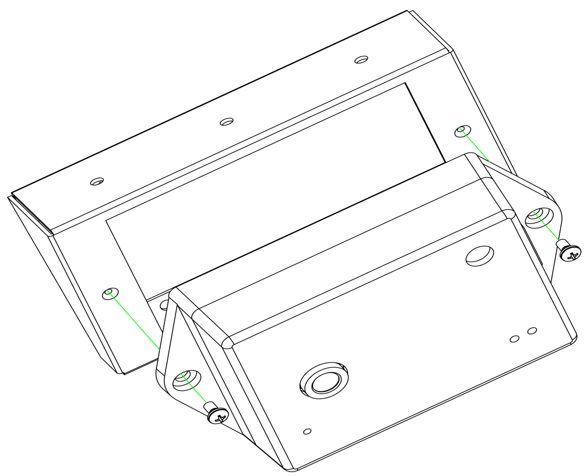
Please refer to the individual sections for complete details on each phase of use.

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1.0 Mechanical Installation

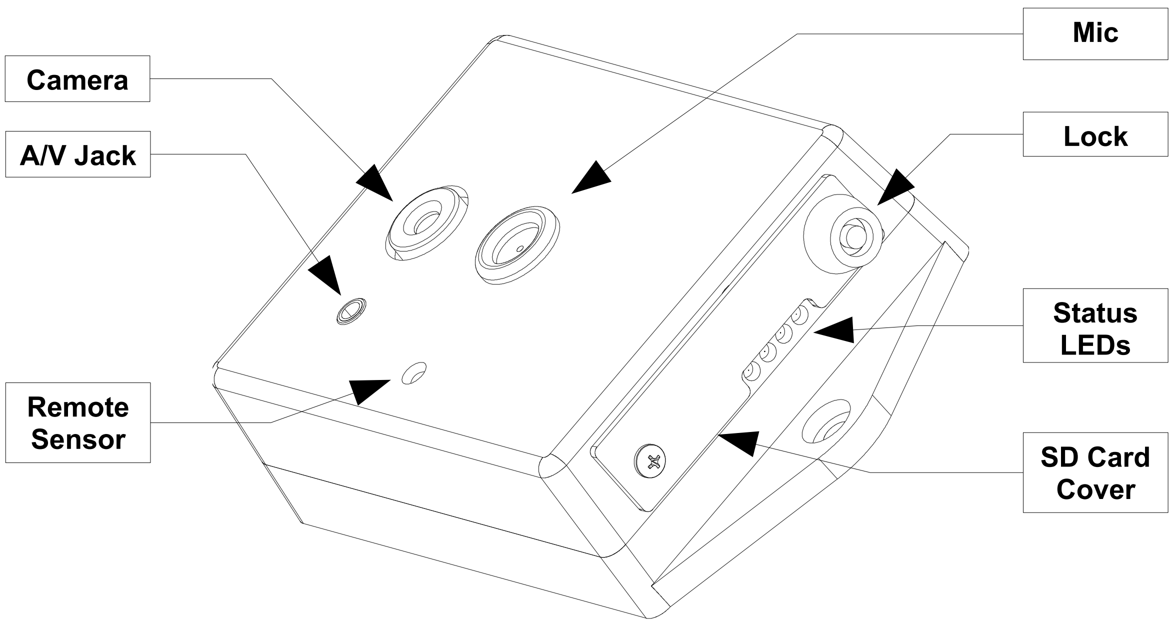


1. Mount the support bracket to the bulkhead or ceiling of the vehicle, using the sheet-metal screws (provided). Position the bracket at the horizontal center of the vehicle. If the bracket is to be bulkhead-mounted, then position the bracket as high as possible on the bulkhead. If the bracket is being mounted to the ceiling, then mount the bracket as far forward as possible. These mounting practices will provide optimal sight-lines.

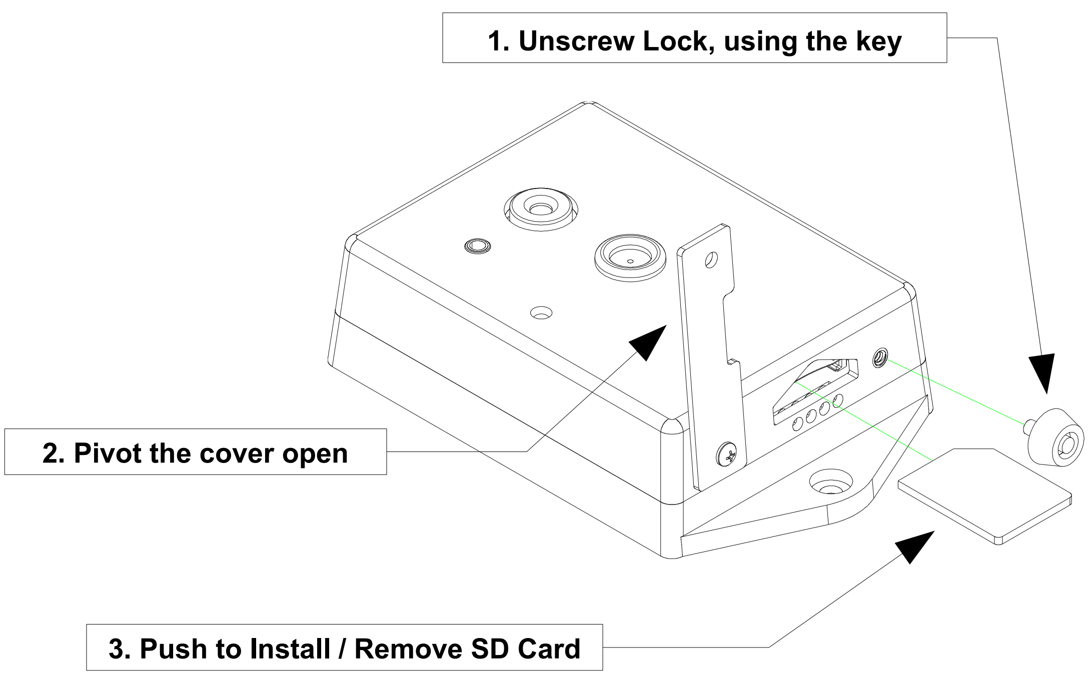


2. Mount the **microBus-Cam II**® unit to the support bracket with the two 8-32 machine screws (provided). Ensure that the Camera Lens is to the left, as viewed from the front.

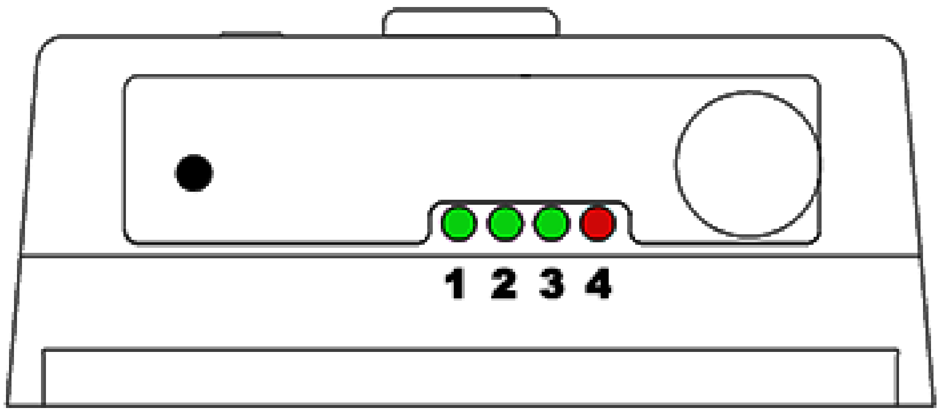
2.0 Product Features



4. To access the SD Card Socket:

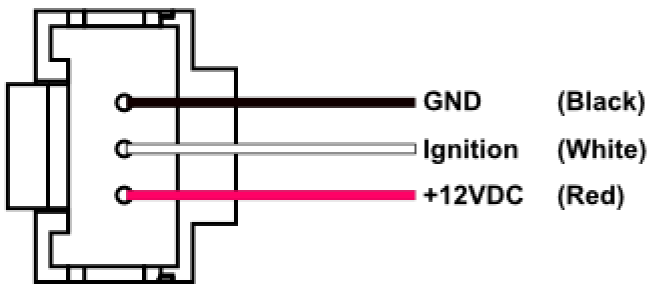


2.1 Status LEDs



LED Number	Steady	Flashing
1	Menus	Playback Active
2	Preview	Reading SD Card
3	--	Recording
4	Power	Power

3.0 Electrical Connections



Access the Power Connector from the Rear of the Unit

Connect each wire as indicated by the diagram. Make sure that the battery connection is to a constant source of +12 VDC power, and fuse the +12 VDC wire at a maximum of 2A.

That's it! You're done with the installation.

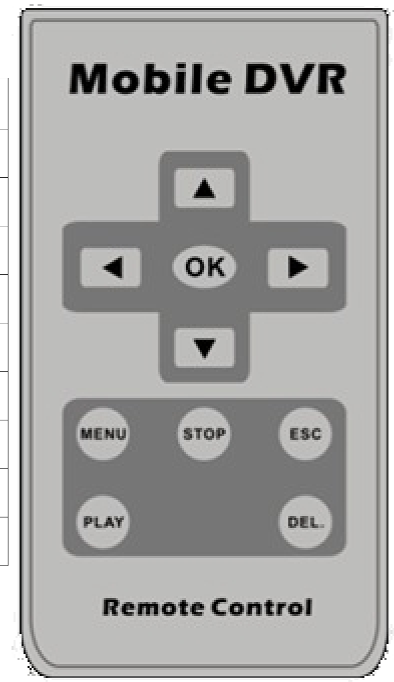
Finally, plug the AV Adaptor (provided) into the A/V jack that is located below the camera. Insert your standard RCA-type A/V cable to connect to your desired video monitor or TV (it must be equipped with A/V inputs, of course).

When the unit has been powered, you will see a live image in your monitor. That will help you to position the unit for the desired view, and to adjust the focus accordingly.

If you need to adjust the focus, then lightly grasp the lens and rotate it slightly, while confirming focus in your attached monitor.

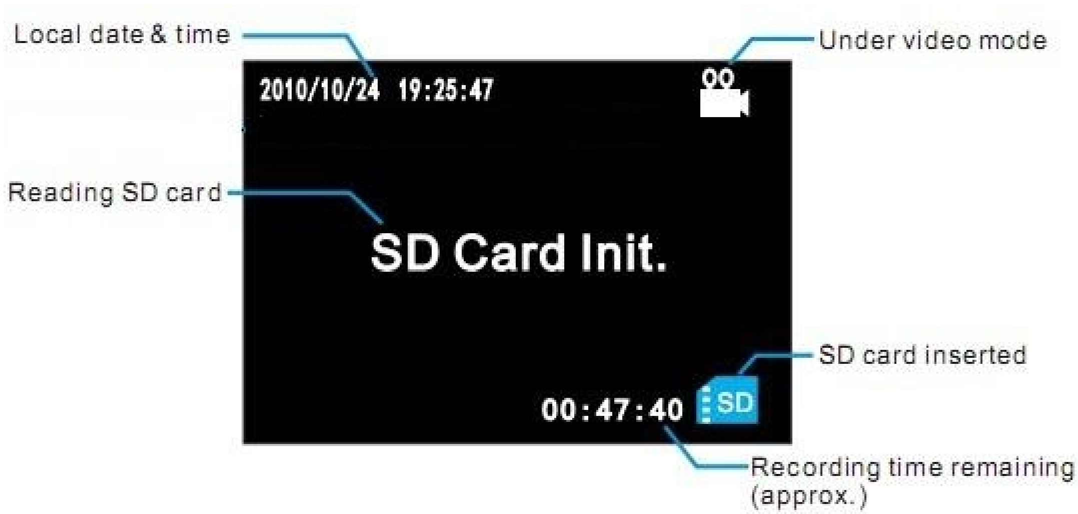
4.0 Remote Control Layout

Buttons	Functions
▲	Up / Volume up (during playback)
▼	Down / Volume down (during playback)
◄	Left / Fast Forward (during playback)
►	Right / Fast Rewind (during playback)
OK	Confirm / Record (during playback)
MENU	Activate Menu
P/P	Play / Pause playback / Delete file
STOP	Stop
ESC	Return to Previous Menu or Clip

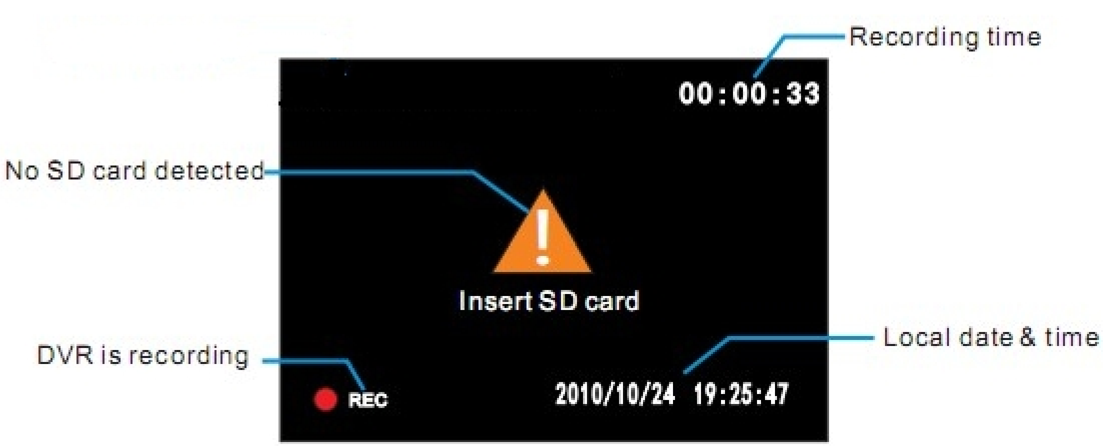


5.0 Screen Layouts

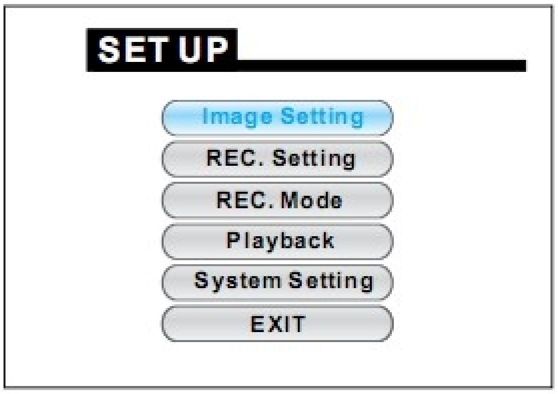
5.1 Standby (Live) Mode



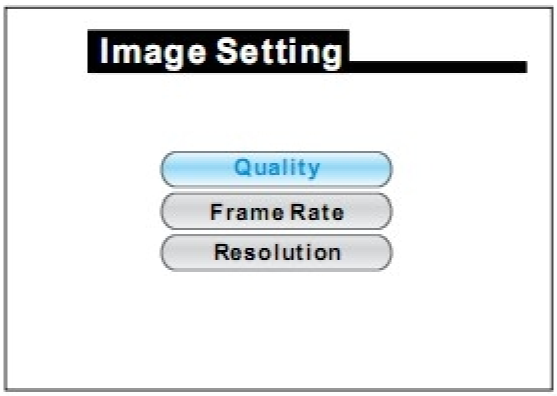
5.2 Record Mode



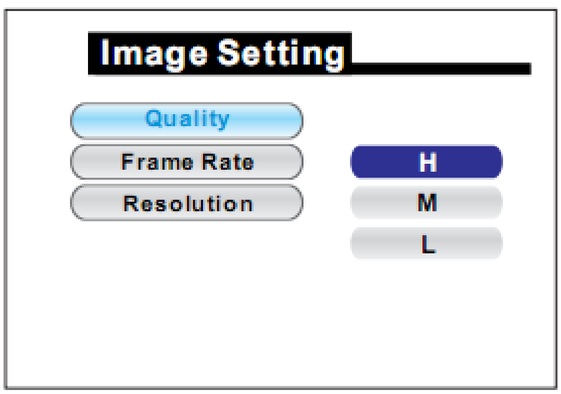
6.0 Image Setup



A. press “MENU” key to enter into system SET-UP.



B. press “OK” to set

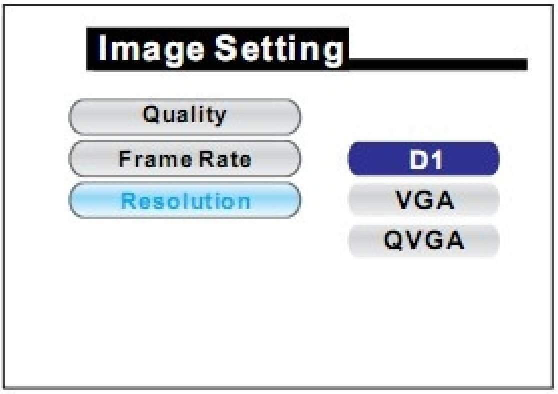


H: best image quality

M: normal image quality

L: low image quality

* the lower the image quality, the longer the recording time



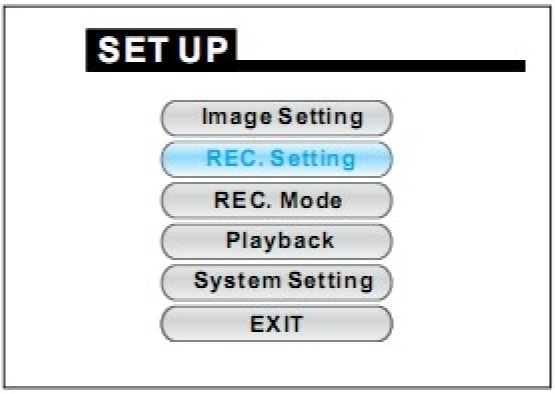
D1: 704X576

VGA: 640X576

QVGA: 320X288

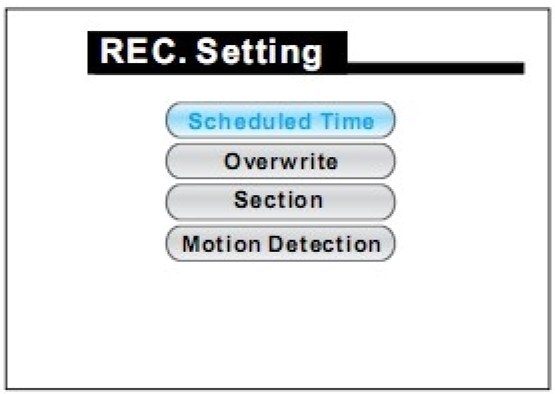
*the lower the resolution, the longer the recording time

7.0 Recording Setup

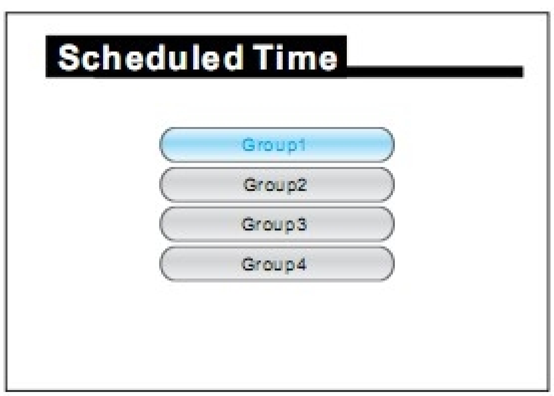


A. press "MENU" key to enter into system SET-UP.

7.1 Scheduling



B. system starts and stops recording automatically according to the scheduled time period



C. press "OK" for 4 groups

press UP/DOWN to choose

press "OK" to enter into each group

*Weekly



A. press LEFT/RIGHT to choose modes:

Weekly: auto record weekly
Once: auto record once
Off: switch off this group

B. e.g. to choose "Weekly" mode, press UP/DOWN, "Weekly" mode is confirmed when it's in blue;
press "OK" to the next step, select Start Time & End Time



C. press UP/DOWN to change time; and RIGHT to move on and select days that is needed



D. e.g. to choose MON, press UP/DOWN to select/dis-select it;

refer to the picture on the left, MON-FRI are all selected

Note: purple font means selected, black font means dis-selected

E. press "OK" to finish weekly set-up, the 2 yellow triangle will go back onto "Weekly"(in blue)

F. press "ESC" to save and return to group list for other groups set-up

*Once(Daily)



A. choose “Once”, press UP/DOWN, “Once” mode is confirmed when it’s in blue

B. press “OK” to move on, please refer to “Weekly” set-up

*Off



A. choose “off”, press UP/DOWN, the group is switched off when it’s in blue

B. press “ESC” to switch off this group

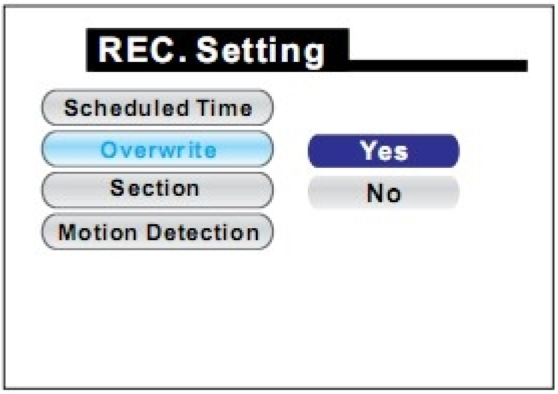
Note:

A. in each group, only one mode can be selected among “Weekly”, “Once” and “Off”;

B. if scheduled period in “Weekly” overlaps with those in “Once”, system will auto choose to record under the longer period; the same method applies to overlaps in between different groups;

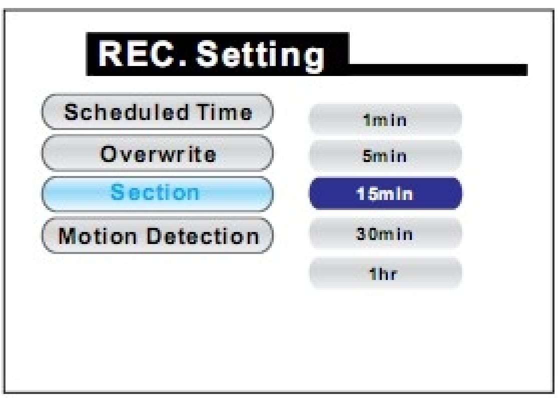
C. press UP/DOWN to select each mode in a group, blue font means mode selected;

8.0 Continuous Record Mode (Rewrite)



A. system will delete the first 300MB files once the SD card is full to save new files

9.0 Clip Length Select

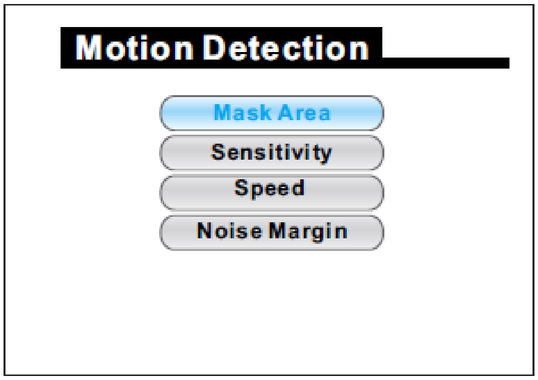


B. set up section recording time

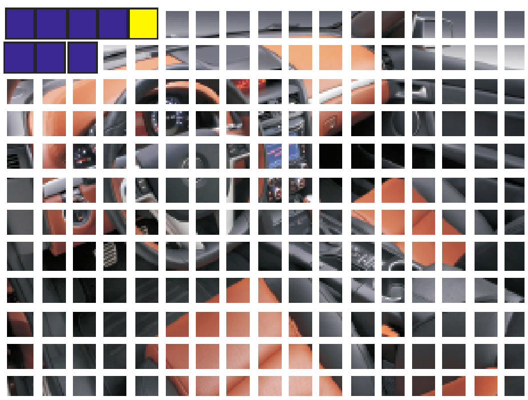
* only available under "Manual", "Scheduled" and "Power Up Rec." modes

*2.5 min section recording time is fixed under "Motion Detection" mode

10.0 Motion Detection



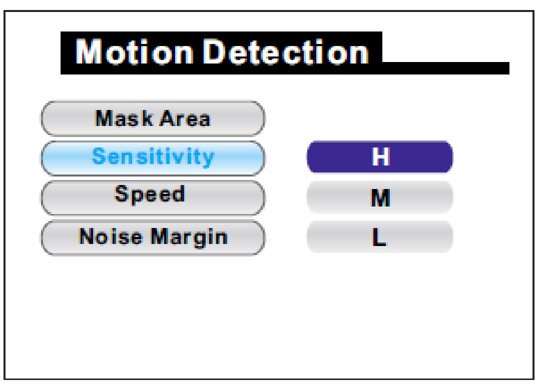
A. enter into "Mask Area", the screen will be shown in grids as below:



B. press direction keys to move the cursor to choose the area

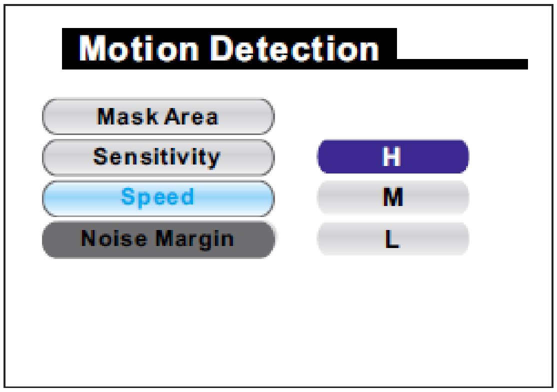
C. press "OK" to confirm
blue grids area won't be motion-detected

D. all grids area that the camera covers are recorded in image



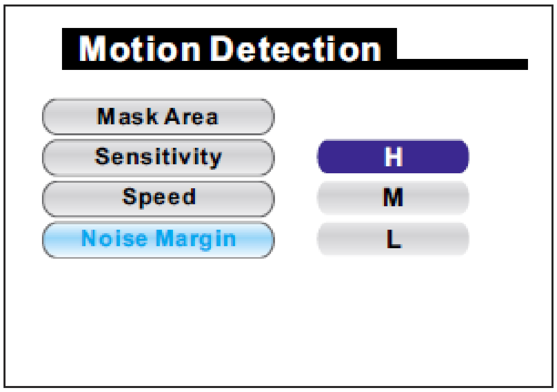
H: high level
M: middle level
L : low level

* system will be triggered very easily if sensitivity is set under high level.



A. different speed levels to trigger system

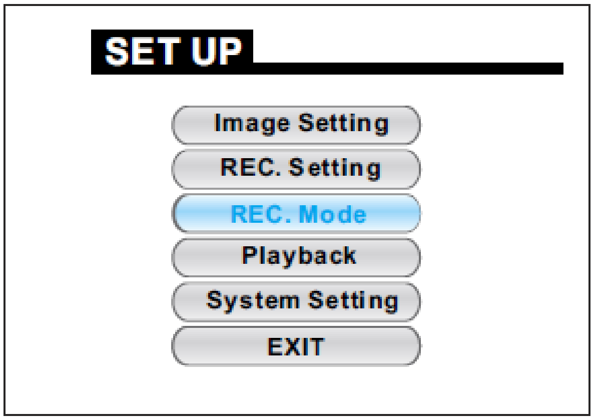
*system will be triggered very easily
if speed is set in low level.



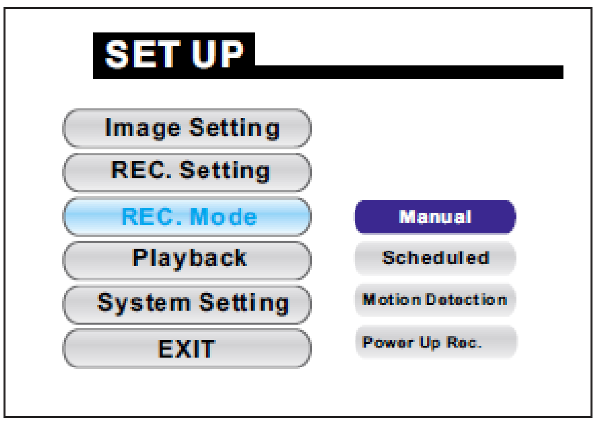
B. different noise levels to trigger system

*system will be triggered very easily
if noise is set in low level

11.0 Recording Mode



set the recording mode for system



choose a mode first:

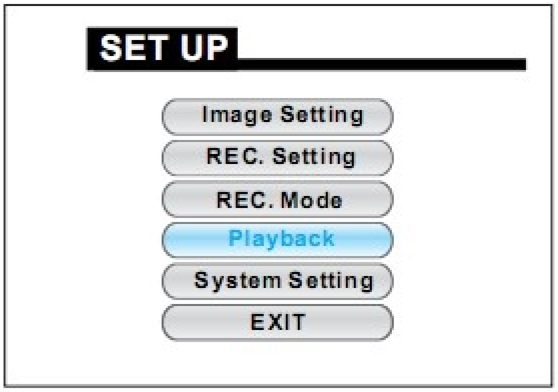
Manual:
under this mode, press "OK" to start recording, and "STOP" to stop recording

Scheduled:
system starts and stops recording according to the scheduled period preset

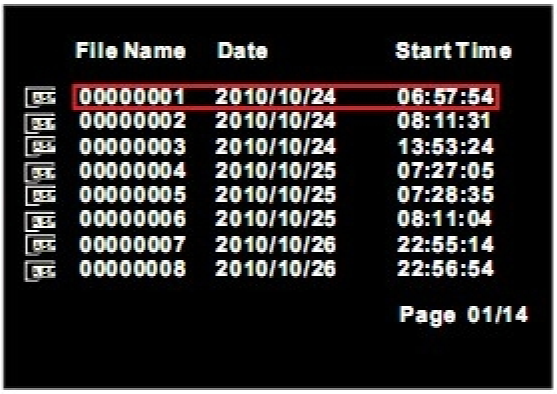
Motion Detection:
system starts recording automatically by detecting motions in the area preset;
*2.5min section recording time is fixed

NOTE: Use only <u>Manual</u> and <u>Scheduled</u> Settings for Vehicles.

12.0 Playback



A. press “OK” to enter into file list



Delete:
A. press UP/DOWN to choose the file(s) you want to delete

B. press “P/P” or “DEL.” to delete

Play:
A. press UP/DOWN to choose and “OK” to open the file

B. press “P/P” to play

Fast forward/backward:
Press RIGHT/LEFT to fast forward/backward, one press increases play speed rate (can choose 2,4,8,16 rates).

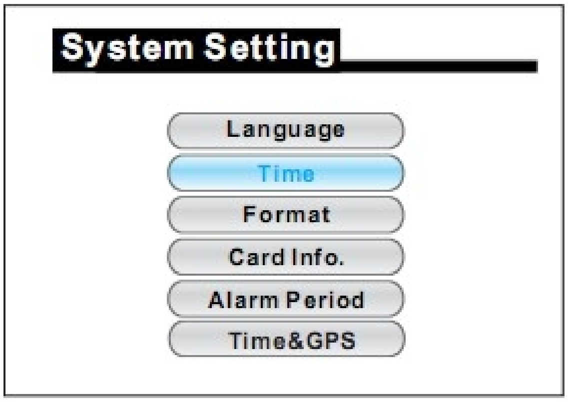
Volume up and down
Press UP/DOWN to turn volume up/down. Highest volume level is 8.

Pause:
Press “P/P” to pause, press it again to start.

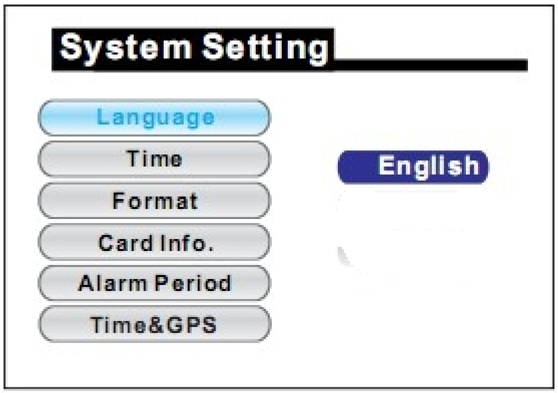
Stop:
Press “STOP” to stop playing.

Exit playing mode:
Press “ESC” to return to file list.

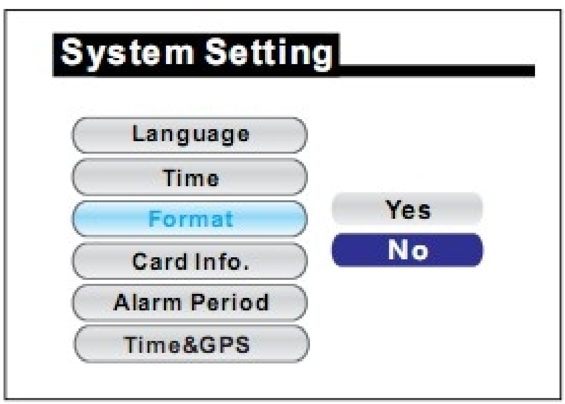
13.0 System Settings



*set local date & time



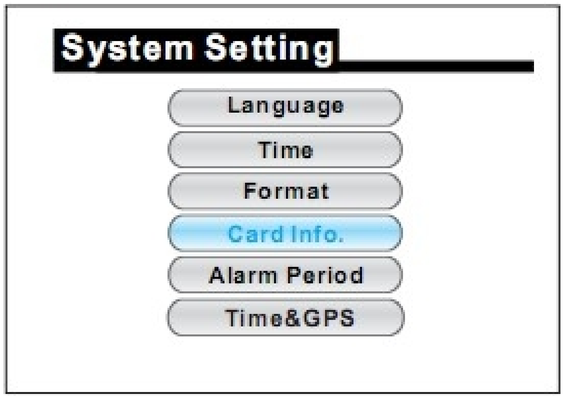
Additional Languages available in the future



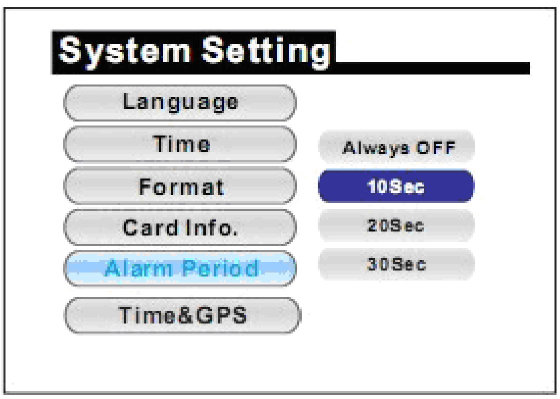
*choose "Yes" to format SD card

Attention!

all files can not be restored after being formatted from SD card



*check SD memory capacity



* choose alarm ON(length)/OFF
* system outputs an alarm signal when motion detection is triggered

Note: The GPS function is reserved for future versions. Use the **TIME** selection to enable/disable the display and recording of the time-stamp. The **ENABLE** setting is highly recommended.

When you have finished programming, press **MENU** to save and exit to **LIVE MODE**. When the Ignition is activated, the unit will start recording with your new settings.

14.0 Working with Clips--The SD Card

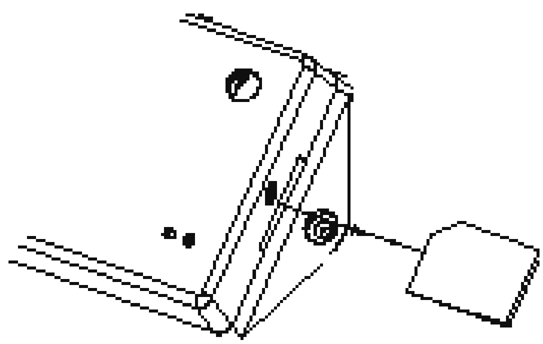
The recorded video clips are stored on a totally solid-state SD (Secure Digital) Card. The **microBus-Cam II**® can accept SD Cards with capacities up to 32 GB.

Most users prefer to use a computer to view their clips. It is more convenient than on-vehicle viewing— just remove the card and plug it into the SD Card reader on your computer. Most recent computers have such readers already built in, but if yours does not, a very inexpensive reader can be purchased at your local computer store (or us). The readers use the computer's USB 2.0 port to adapt to the SD Card.

Important:
Before proceeding with SD Card removal , stop all recording by pressing the 'STOP' button on the Remote Control, and wait for the green record light to go off. Failure to stop recording before removing the SD Card can corrupt it.

To remove the **SD Card** from the **microBus-Cam II**®, use the provided key to disengage the lock next to the card, then swing the SD Card cover away from the opening..

Next, push the **SD Card** toward the unit, then release it--the card will disengage. Reverse the procedure to install a new card.



Note:

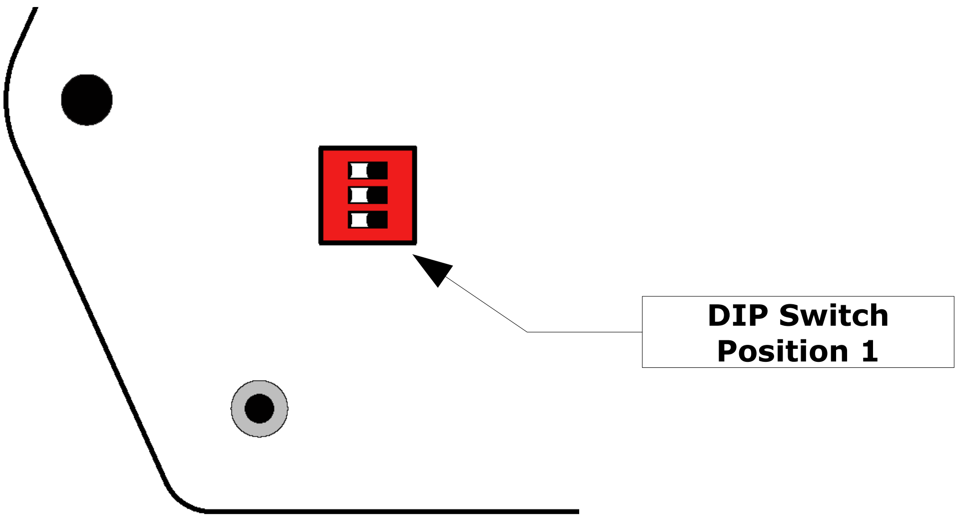
Make sure that your computer has the latest video codecs installed. Free codecs are available for download at www.divx.com. They also have some excellent video players at a nominal cost, but the standard Windows Media Player is perfectly capable of playing clips from the **microBus-Cam II®**
(with the proper codecs, of course).

High-quality video playback of any kind requires a good-quality video graphics card and USB 2.0 port on your computer.

15.0 Post Trip Delay

This feature provides the ability to continue recording for a set period--even after the Ignition (or other trigger source) is turned off.

The time delay setting can be made with the 3-position DIP switch that is located on the rear of the unit. Simply use a small screwdriver or pen to slide the small switches into the **OFF** or **ON** positions. We have provided a table of time delays (in minutes) and the switch settings that correspond to those delays (see below). You can choose among the following values: **1, 2, 3, 5, 10, 20 or 30 minutes**.



Time (minutes)	Switch		
	1	2	3
0 (No Delay)	OFF	OFF	OFF
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
5	OFF	OFF	ON
10	ON	OFF	ON
20	OFF	ON	ON
30	ON	ON	ON

16.0 Specifications & Features

For DVR	Parameter
Compression Standard	MPEG-4 / H.264
Resolution	Full D1 (704 x 576)
Video Format	MPEG-4/ASF
Audio Format / Rate, Encoding	MP3 / 8KHz,ADPCM
Frame Rate	User-selectable, 5/15/30
Storage Medium	SDHC Memory Card, Max. 32 GB
Playback	Composte NTSC
User Control/Setup	Via Infrared Remote Control (provided)
Wide Operating Voltage Range	5-35V DC
Low Power Consumption	Standby: 1W / Recording: 2W
Stability	Built-in Watch Dog Circuit
Automatic Operation	On Ignition Trigger (or other 12VDC source) or with Ignition Trigger + Schedule.
For Camera	**Parameter**
Image Sensor	Sony 1/3”
CCD + DSP	Sony 672AK + Sony Effio-E Image Processor
Horizontal Resolution	700TVL, Low Illumination, DWDR, OSD, DNR
Pixels	NTSC, 976H x 582V
TV System	NTSC
Usable Illumination	0.001 Lux / F2
S/N Ratio	≥ 115 dB, AGC Off
Gamma Correction	0.45
Video Out	NTSC Composite (1Vp-p @ 75 Ohms)
Scanning System	NTSC 525 Lines, 60 Fields/Second
Electronic Shutter Speed	1/60 Second to 1/100,100 Second
General	**Parameter**
Dimension (without Bracket)	5.75” L x 3.25” W x 1/25” H
Operating Voltage	5 – 32 VDC
Operating Temperature	15°F to 122°F
Enclosure Composition, Compliance	ABS / UL 94 HB
Enclosure Tensile Strength	6530 psi